

Amendments to the claims

The following listing of claims replaces any prior revisions or listing of claims in this application.

1-14. (Canceled)

15. (Currently amended) An optical transmission system comprising:

a first modulator ~~adapted to receive~~ for differential phase shift keying (DPSK) modulating an optical signal in accordance with a first data signal to generate a DPSK modulated optical signal; and

a second modulator coupled to the first modulator ~~and adapted to receive for~~ amplitude shift keying (ASK) modulating the DPSK modulated optical signal in accordance with a second data signal; wherein the first and second data signals are synchronous and have the same data rate, and wherein the first and second modulators are adapted to generate a multilevel coded optical signal using differential phase shift keying and amplitude shift keying modulation, the multilevel coded optical signal having a prescribed extinction ratio between about 5 dB and about 10 db, wherein the first and second data signals are synchronous and have the same data rate.

16-20. (Canceled)

21. (New) The system of claim 15, wherein the first modulator is a modulator selected from the group consisting of a Mach-Zehnder modulator, a single-waveguide modulator, and an electro-absorption modulator.

22. (New) The system of claim 15, wherein the second modulator provides chirped ASK modulation.

23. (New) The system of claim 15 comprising:

a differential encoder for differentially encoding the first data signal.

24. (New) The system of claim 15, wherein the multilevel coded optical signal has a return-to-zero (RZ) pulse format.

25. (New) The system of claim 15, wherein the multilevel coded optical signal is an optical 4-ary DP-ASK modulated signal.

26. (New) The system of claim 15, comprising an optical receiver for receiving the multilevel coded optical signal and including a DPSK receiver for detecting the first data signal.

27. (New) The system of claim 26, wherein the optical receiver includes an optical intensity receiver for detecting the second data signal.

28. (New) The system of claim 26, wherein the optical receiver includes a post nonlinear-phase-shift compensator.

29. (New) The system of claim 26, wherein the DPSK receiver includes a delay interferometer and a balanced detector.

30. (New) An optical transmission system comprising:

a first modulator for amplitude shift keying (ASK) modulating an optical signal in accordance with a first data signal to generate an ASK modulated optical signal; and

a second modulator coupled to the first modulator for differential phase shift keying (DPSK) modulating the ASK modulated optical signal in accordance with a second data signal to generate a multilevel coded optical signal having a prescribed extinction ratio between about 5 dB and about 10 db, wherein the first and second data signals are synchronous and have the same data rate.

31. (New) The system of claim 30, wherein the second modulator is a modulator selected from the group consisting of a Mach-Zehnder modulator, a single-waveguide modulator, and an electro-absorption modulator.

32. (New) The system of claim 30, wherein the first modulator provides chirped ASK modulation.

33. (New) The system of claim 30 comprising:
a differential encoder for differentially encoding the second data signal.

34. (New) The system of claim 30, wherein the multilevel coded optical signal has a return-to-zero (RZ) pulse format.

35. (New) The system of claim 30, wherein the multilevel coded optical signal is an optical 4-ary DP-ASK modulated signal.

36. (New) The system of claim 30, comprising an optical receiver for receiving the multilevel coded optical signal and including a DPSK receiver for detecting the second data signal.

37. (New) The system of claim 36, wherein the optical receiver includes an optical intensity receiver for detecting the first data signal.

38. (New) The system of claim 36, wherein the optical receiver includes a post nonlinear-phase-shift compensator.

39. (New) The system of claim 36, wherein the DPSK receiver includes a delay interferometer and a balanced detector.